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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KASTURE, DNYANESH G

ART UNIT

PAPER NUMBER

3746

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/534,690	Applicant(s) OCHI ET AL.	
	Examiner DNYANESH KASTURE	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6 and 8-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6 and 8-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. Applicants arguments regarding lines 7-9 of page 13 are persuasive, although in the examiners opinion the phrase “..to become the ideal DC voltage EQUIVALENT value of the AC power voltage..” would be even more clear. In any case, all previous objections to the specification are withdrawn in view of applicant’s amendments submitted on June 5, 2008.

Claim Objections

2. The previous objections made to claim 7 are hereby withdrawn in view of applicant cancelling the claim in the amendments submitted on June 5, 2008. However a new objection (due to a minor informality) is made to claims 1 and 6 because the phrase “.. when the detected power source voltage increases” appears redundant since the first part of the sentence containing the phrase already has this limitation: “..with an increasing amount of a detected power source voltage..”

Claim Rejections - 35 USC § 112

3. The previously made 112 2nd paragraph rejections to claims 1, 2, 4 and 7 are hereby withdrawn in view of applicant’s amendments submitted on June 5, 2008. The 112 2nd paragraph rejections of claim 3, 5 and 10 are reaffirmed, see below.

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4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3, 5, 8 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. In Re claims 3 and 8, a dependant claim has all the limitations of the independent claim on which it depends, in this case claims 1 and 6. However, "changing the command value in correspondence with a detection value of the power source voltage" in claim 3 is broader than "increasing the command value in correspondence with an increasing amount of a detected power source voltage" in claim 1. Therefore for example a method step of decreasing a command value with increase in detected power source voltage would read on claim 3 (changing command value with detection) however, it would contradict claim 1 which increases command value with increasing detected power source voltage". Same reasoning applies to claim 8 (depends on 6).

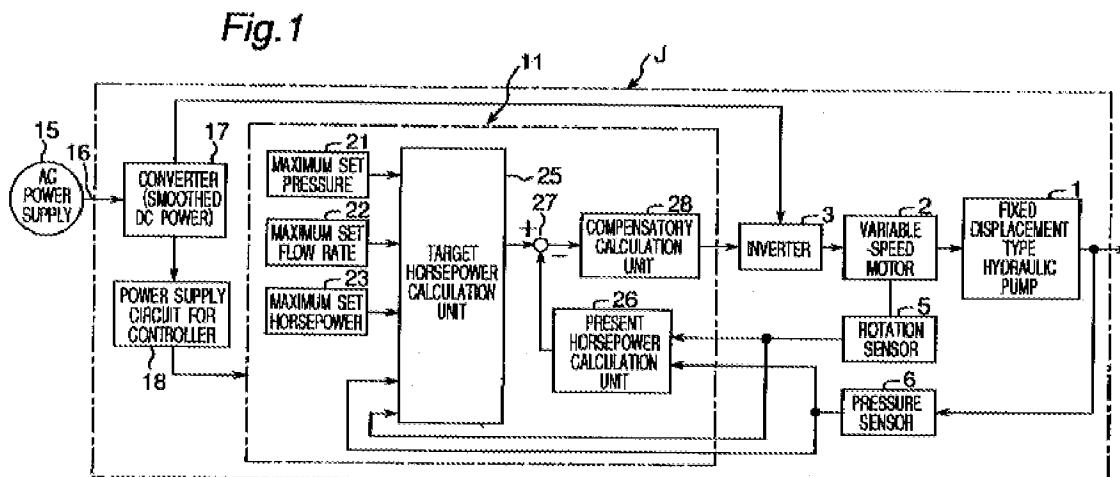
7. In Re claim 5 and 10, "...maintaining a power voltage value of when said command value was last changed.." is indefinite, what does "value of when" mean ? A power voltage has its own value which is different from a command value. Also, the power voltage is an input to the system, so "maintaining the power voltage value" suggests that the input is somehow being kept the same by the system however, the specification suggests that the system is reacting to externally induced changes in the input power which is inconsistent with the claim.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 4, 5, 6 and 9 - 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi et al (PCT Publication WO01/21959) and in view of Chandler et al (US Patent 3,593,103 A)



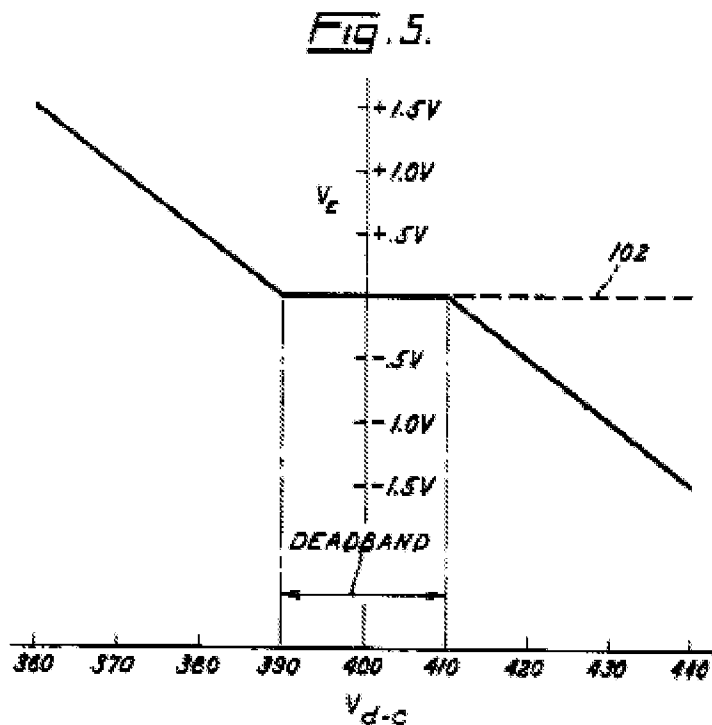
10. In Re claims 1 and 6, with reference to Figure 1 depicted above, Horiuchi et al discloses a pump driving method comprising:

- driving a motor (2) using a controller (11) which executes commands (values)
- carrying out feedback control of the discharge pressure using the signal from the pressure sensor (6) (as described in line 3, Page 4, Paragraph [0021])
- driving a pump (1) using motor (2) (as described in line 14, Page 4, Paragraph [0021])

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- an apparatus (11), (21), (22), (23), (25), (27), (28) that is capable of making changes to the control algorithm if necessary

11. However, Horiuchi et al does not disclose increasing the command value in correspondence with an increasing amount of a detected power source voltage.



12. Nevertheless, with reference to Figure 5 depicted above, Chandler et al discloses a control circuit (Figure 3) for an inverter (40) that drives the motor comprising:

- coupling line (88) to the DC bus from DC Rectifier (20)
- a voltage sensing circuit (90) that generates a representative control signal V_E

that has a command value which is proportional to the deviation of the bus voltage from a predetermined magnitude range or deadband (Column 4, Lines 58-62)

- Referring to Figure 5, in a condition when the detected power source voltage increases, the magnitude (command value) of the control signal V_E also increases

13. It would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate the control circuit including the voltage sensing means of Chandler et al to drive the inverter of Horiuchi et al for the purpose of "systematically controlling the exchange of electrical and mechanical energy between a variable frequency static inverter and its variable speed rotating load during periods of sudden and abnormal increase or decrease of the input power to the inverter" as stated by Chandler et al in Column 1, Lines 73 – 75 and Column 2, Lines 1 – 2.

14. In Re claims 4 and 5, Chandler et al discloses driving the motor based on the value of the control signal V_E which is zero when the DC voltage of the inverter is the "ideal" value, and non-zero when it is not the ideal value.

- When the system is on its way back to normal conditions after a temporary dip in the input power voltage, the value of the control signal V_E changes from what it was during the dip
- For the duration of the dip in input power voltage, control signal V_E maintains its value

15. In Re claims 9 and 10, Chandler et al discloses the control circuit with the sensing means (90) "judges" whether the detected voltage is the ideal value, and

changes the control signal V_E based on variations of the input power source voltage.

The value of the control signal V_E remains non-zero throughout the power dip condition.

16. In Re claim 11 and 13, Chandler et al discloses that the value of the control signal V_E decreases during the return to normal time period after a temporary rise in the input voltage.

17. In Re claim 12 and 14, Figure 6 of Chandler et al depicts that the "soft return" time is greater than the power loss time ($T_2 - T_1$). In this case, the return voltage is not higher than its normal value within the deadband, therefore the increase in speed is less than a value that would correspond to excessive speed (second pre-determined value). Also, during the power dip, the speed is less than normal (first predetermined value). Note also that phrase "soft return" implies that the voltage has returned to normal and is therefore at ideal value.

18. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi et al (PCT Publication WO01/21959) in view of Chandler et al (US Patent 3,593,103 A) and further in view of Applicant's disclosure of Prior Art (hereafter referred to as "Prior") and Reddy (Non Patent Literature reference title: "Fundamentals of Power Electronics", Chapter 9, Page 116, Fig. 9.1 - (c))

19. In Re claim 3 and 8, Horiuchi et al as applied to claims 1 and 6 disclose all the claimed limitations except for defining a pre-determined pressure, flowing amount, and horse power as characteristics values for a predetermined power voltage.

20. Nevertheless Reddy discloses how a torque - speed graph changes with voltage (V1, V2, V3). Since torque speed curves have equivalent pressure-flow rate curves (Page 3, Line 9 of applicant's specification under Background Art), Reddy and Prior disclose defining a pressure and flow rate amount characteristic values for a predetermined power voltage. Note that Horiuchi et al discloses in Column 4, Line 30 that horsepower = flow rate * pressure.

21. It would have been obvious to a person having ordinary skill in the art at the time of the invention to program the controller of Horiuchi et al to account for the changing pressure – flow rate characteristics with voltage as taught by Reddy for the purpose of better controlling the motor under abnormal increase or decrease of the input power voltage as taught by Chandler et al.

Response to Arguments

22. Applicant's arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejection. In addition, even though the introduction of the phrase "command value" into the independent claims contributes to overcoming the 112 2nd paragraph rejections, it has changed the scope of the previously presented independent claims (and consequently the dependant claims), therefore all

previously made indications of allowability of the dependant claims are hereby withdrawn.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DNYANESH KASTURE whose telephone number is (571)270-3928. The examiner can normally be reached on Mon-Fri, 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272 - 7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746

DGK